FIG. 1

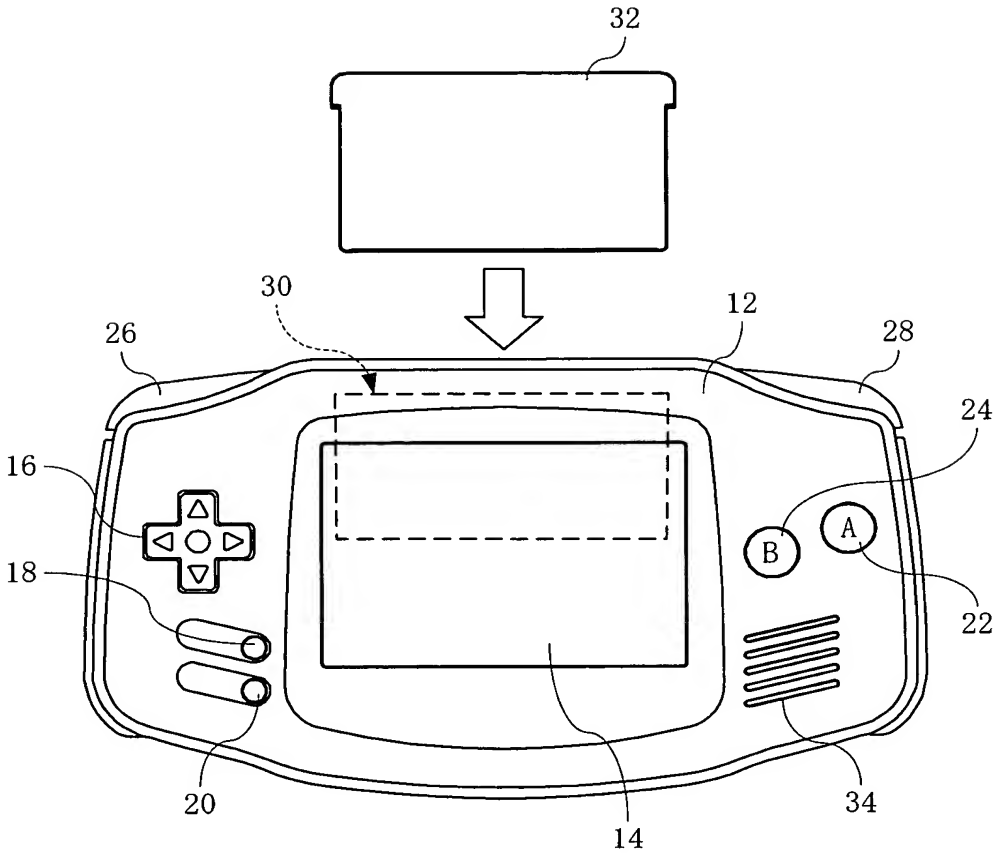


FIG. 2

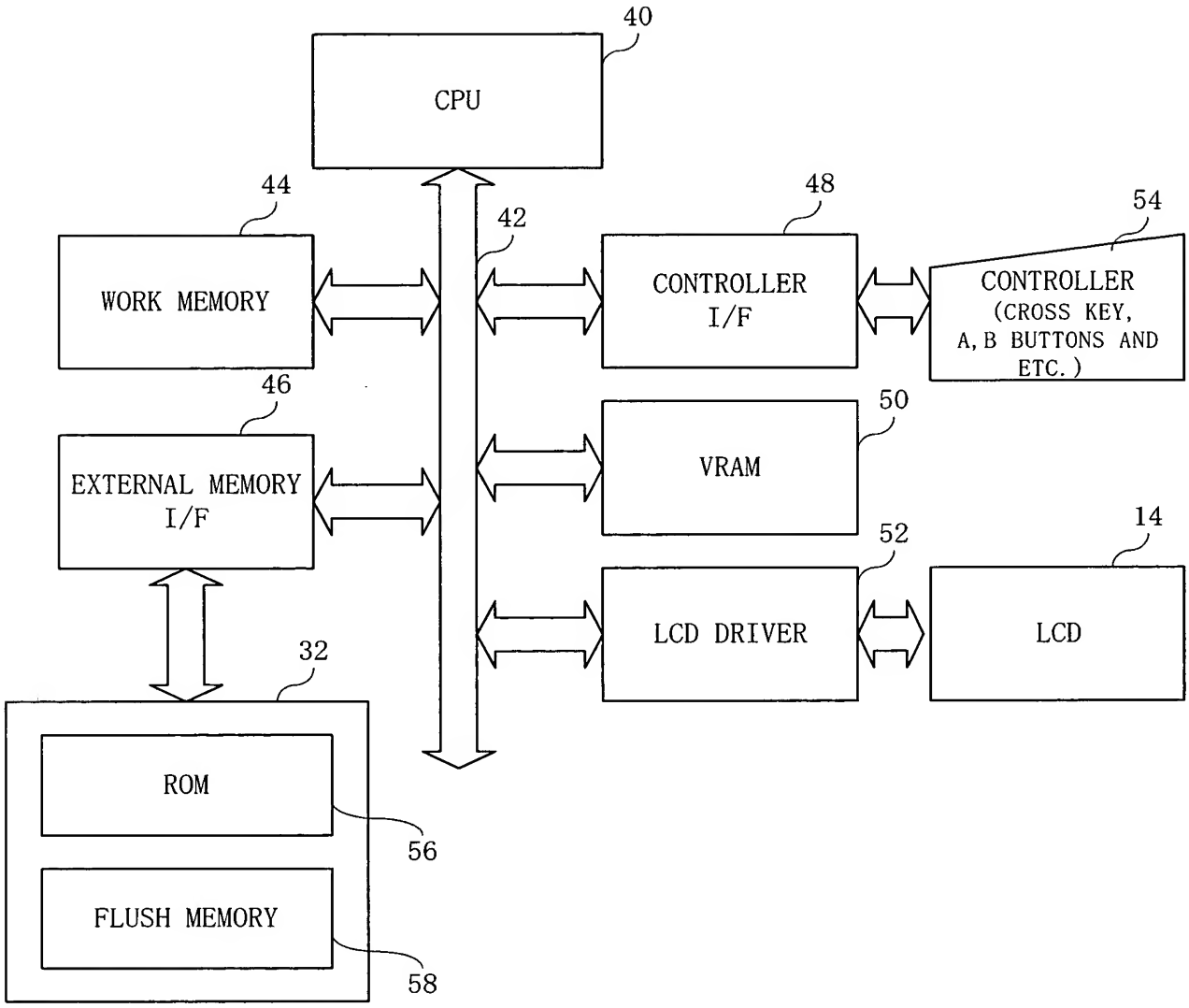

10
40
CPU
44
WORK MEMORY
42
48
CONTROLLER I/F
54
CONTROLLER (CROSS KEY, A, B BUTTONS AND ETC.)
46
EXTERNAL MEMORY I/F
50
VRAM
52
14
LCD DRIVER
LCD
32
ROM
56
FLUSH MEMORY
58

FIG. 3

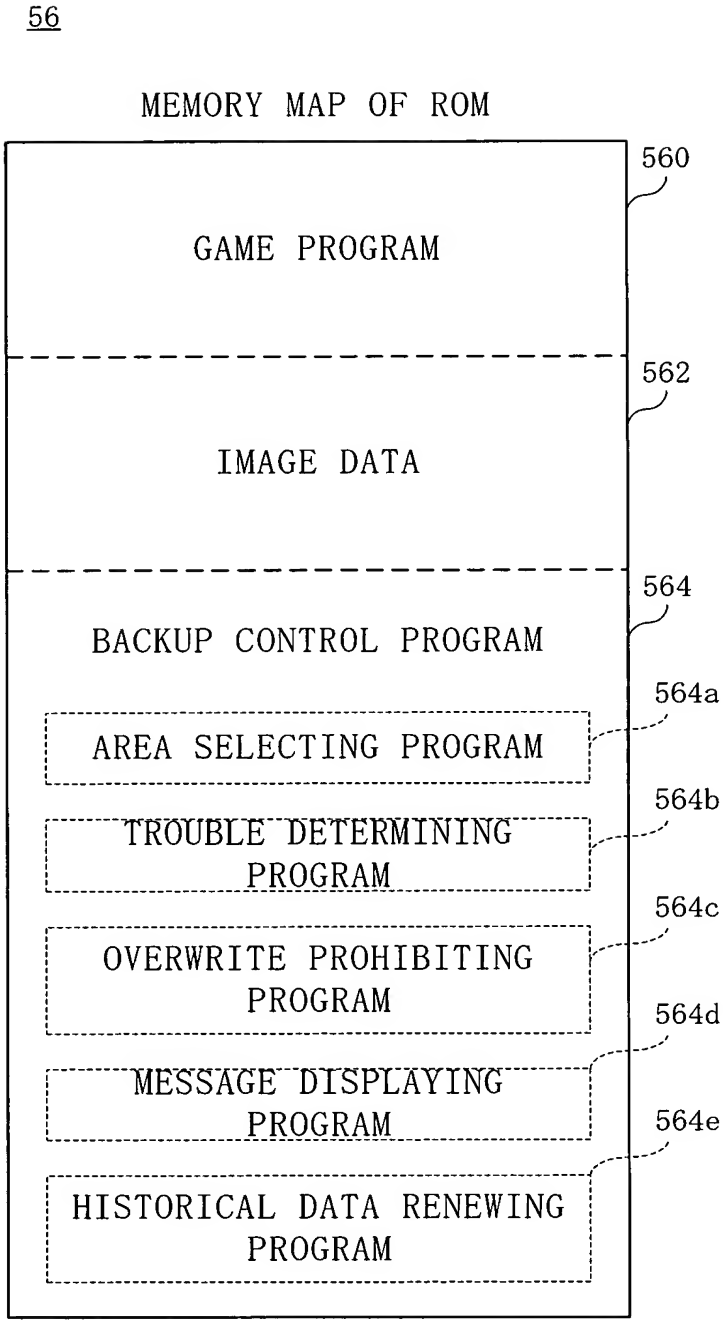

56
MEMORY MAP OF ROM
560
GAME PROGRAM
562
IMAGE DATA
564
BACKUP CONTROL PROGRAM
564a
AREA SELECTING PROGRAM
564b
TROUBLE DETERMINING PROGRAM
564c
OVERWRITE PROHIBITING PROGRAM
564d
MESSAGE DISPLAYING PROGRAM
564e
HISTORICAL DATA RENEWING PROGRAM

FIG. 4

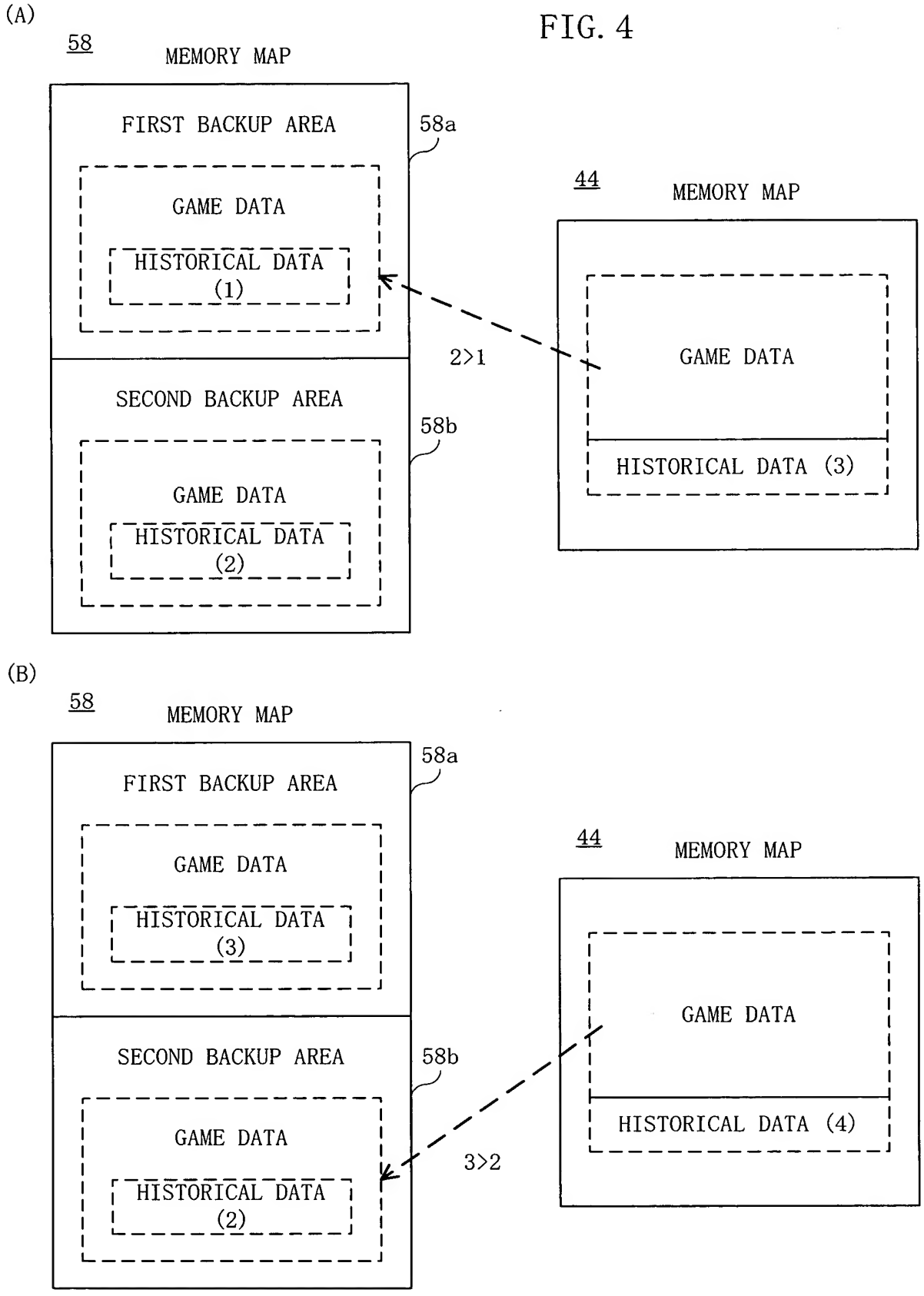

(A)
58
MEMORY MAP
FIRST BACKUP AREA
58a
GAME DATA
HISTORICAL DATA (1)
SECOND BACKUP AREA
58b
GAME DATA
HISTORICAL DATA (2)
2>1
44
MEMORY MAP
GAME DATA
HISTORICAL DATA (3)
(B)
58
MEMORY MAP
FIRST BACKUP AREA
58a
GAME DATA
HISTORICAL DATA (3)
SECOND BACKUP AREA
58b
GAME DATA
HISTORICAL DATA (2)
3>2
44
MEMORY MAP
GAME DATA
HISTORICAL DATA (4)

FIG. 5

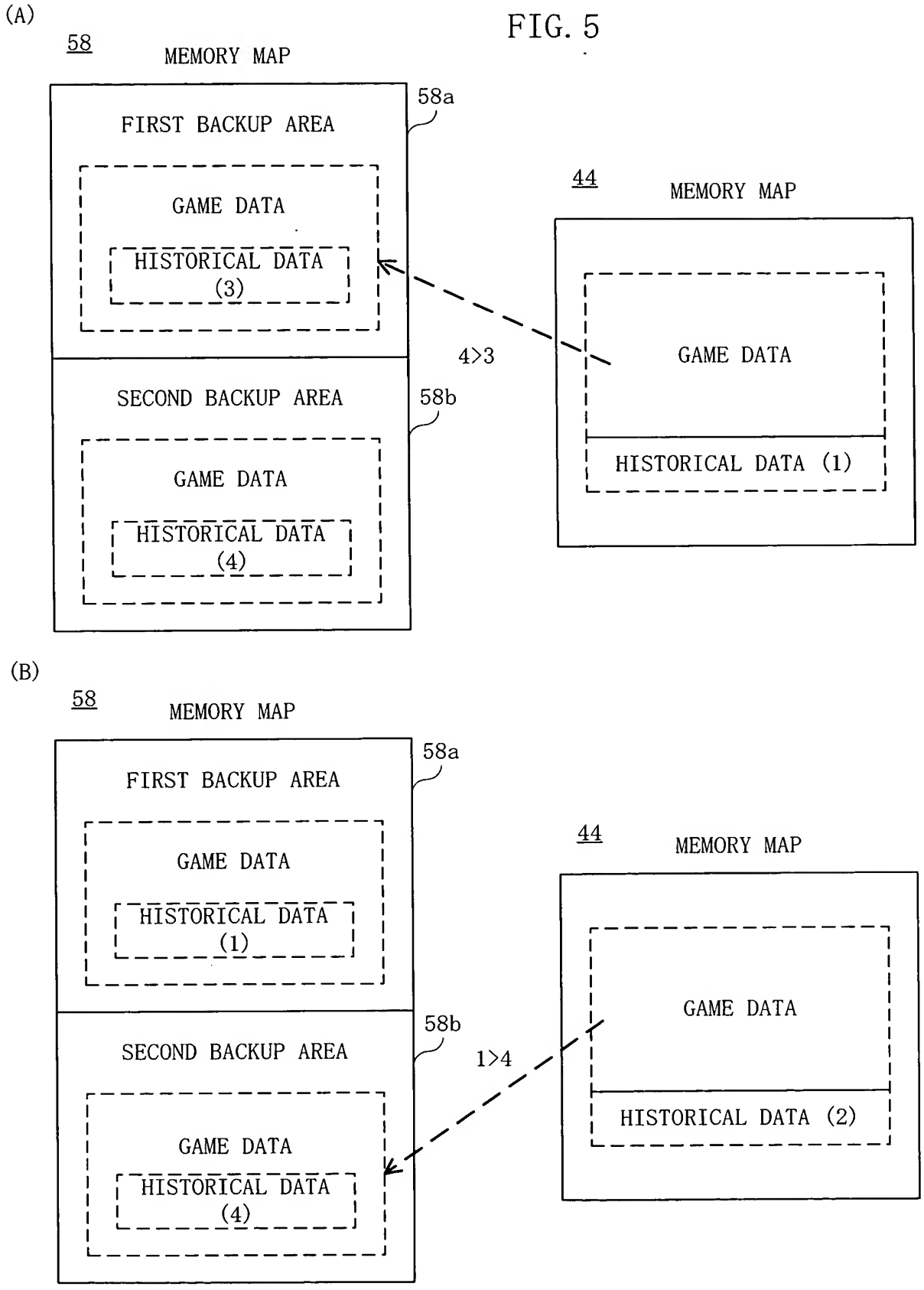

(A)
58
MEMORY MAP
FIRST BACKUP AREA
58a
GAME DATA
HISTORICAL DATA (3)
SECOND BACKUP AREA
58b
GAME DATA
HISTORICAL DATA (4)
4>3
44
MEMORY MAP
GAME DATA
HISTORICAL DATA (1)
(B)
58
MEMORY MAP
FIRST BACKUP AREA
58a
GAME DATA
HISTORICAL DATA (1)
SECOND BACKUP AREA
58b
GAME DATA
HISTORICAL DATA (4)
1>4
44
MEMORY MAP
GAME DATA
HISTORICAL DATA (2)

FIG. 6

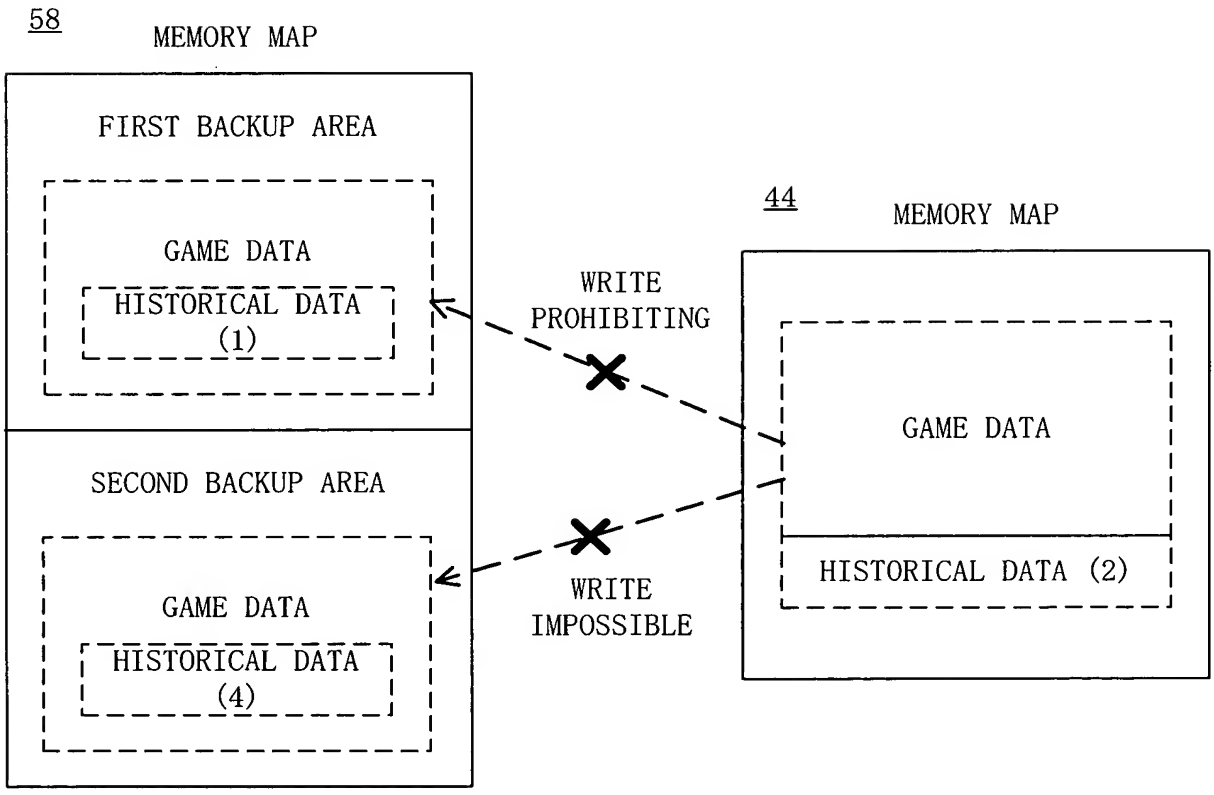
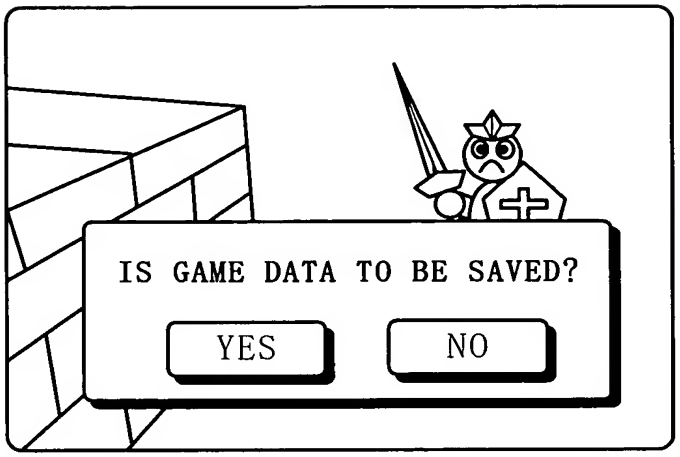
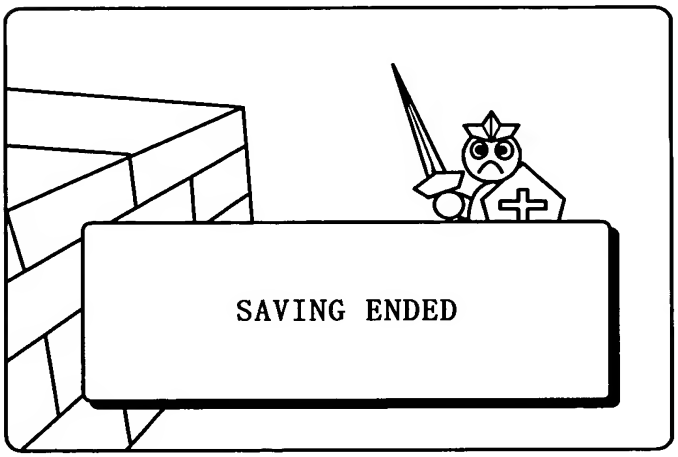

58
MEMORY MAP
FIRST BACKUP AREA
GAME DATA
HISTORICAL DATA (1)
SECOND BACKUP AREA
GAME DATA
HISTORICAL DATA (4)
WRITE PROHIBITING
WRITE IMPOSSIBLE
44
MEMORY MAP
GAME DATA
HISTORICAL DATA (2)

FIG. 7

(A)


IS GAME DATA TO BE SAVED?
YES
NO

(B)


SAVING ENDED

(C)

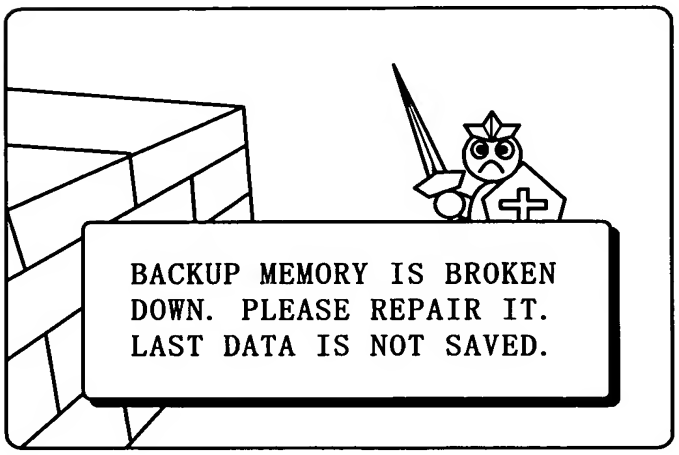

BACKUP MEMORY IS BROKEN
DOWN. PLEASE REPAIR IT.
LAST DATA IS NOT SAVED.

FIG. 8

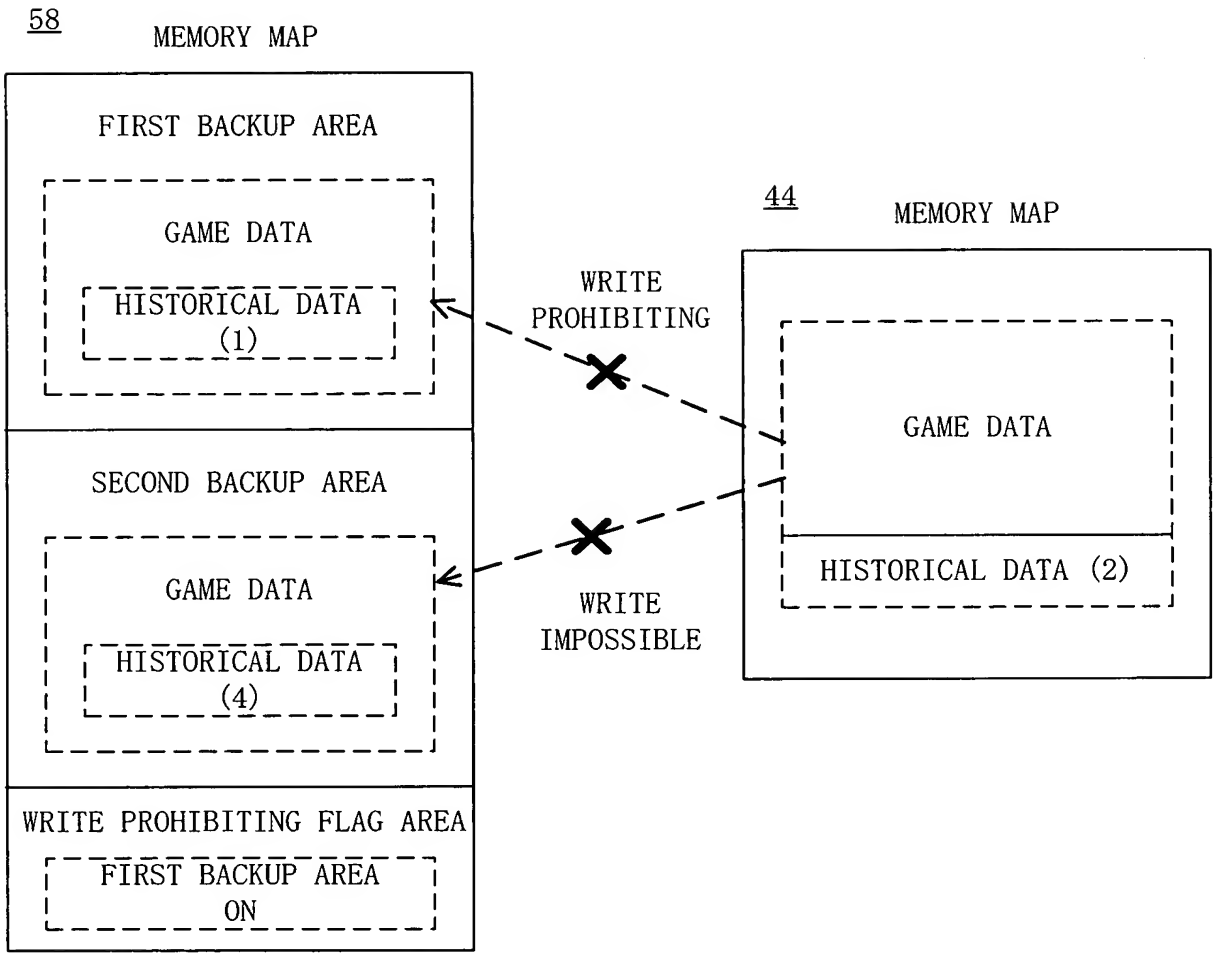

58
MEMORY MAP
FIRST BACKUP AREA
GAME DATA
HISTORICAL DATA (1)
SECOND BACKUP AREA
GAME DATA
HISTORICAL DATA (4)
WRITE PROHIBITING FLAG AREA
FIRST BACKUP AREA ON
WRITE PROHIBITING
WRITE IMPOSSIBLE
44
MEMORY MAP
GAME DATA
HISTORICAL DATA (2)

FIG. 9

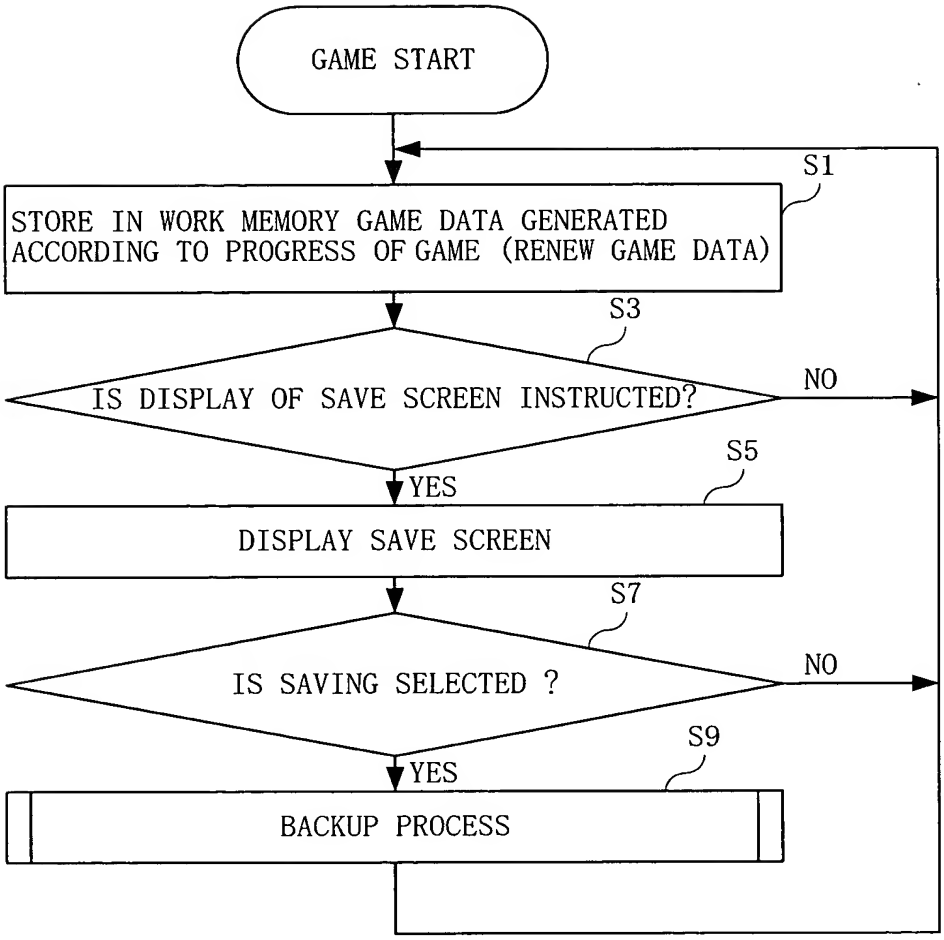

GAME START
S1
STORE IN WORK MEMORY GAME DATA GENERATED ACCORDING TO PROGRESS OF GAME (RENEW GAME DATA)
S3
IS DISPLAY OF SAVE SCREEN INSTRUCTED?
NO
YES
S5
DISPLAY SAVE SCREEN
S7
IS SAVING SELECTED ?
NO
YES
S9
BACKUP PROCESS

FIG. 10

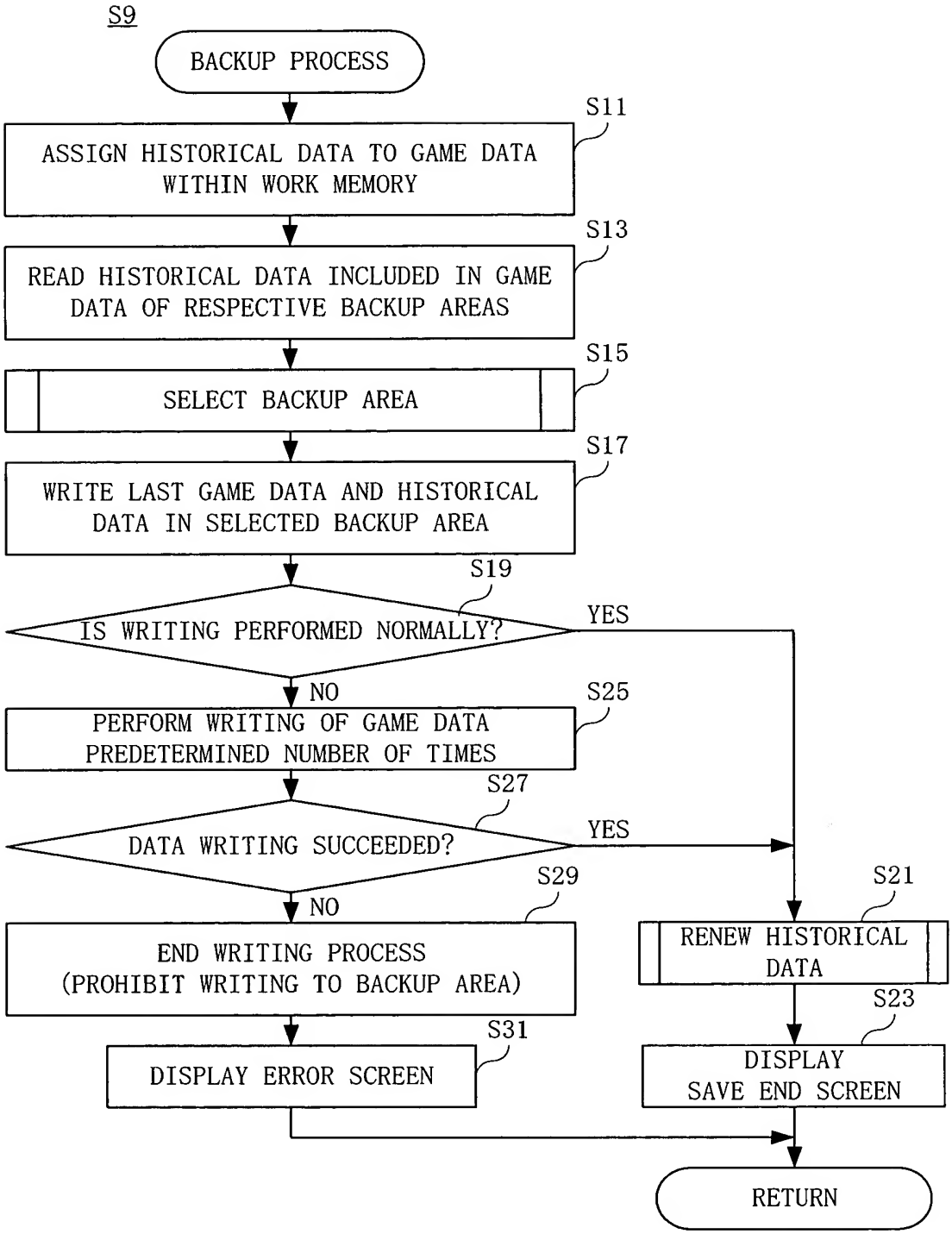

S9
BACKUP PROCESS
S11
ASSIGN HISTORICAL DATA TO GAME DATA WITHIN WORK MEMORY
S13
READ HISTORICAL DATA INCLUDED IN GAME DATA OF RESPECTIVE BACKUP AREAS
S15
SELECT BACKUP AREA
S17
WRITE LAST GAME DATA AND HISTORICAL DATA IN SELECTED BACKUP AREA
S19
IS WRITING PERFORMED NORMALLY?
YES
NO
S25
PERFORM WRITING OF GAME DATA PREDETERMINED NUMBER OF TIMES
S27
DATA WRITING SUCCEEDED?
YES
NO
S29
END WRITING PROCESS (PROHIBIT WRITING TO BACKUP AREA)
S31
DISPLAY ERROR SCREEN
S21
RENEW HISTORICAL DATA
S23
DISPLAY SAVE END SCREEN
RETURN

FIG. 11

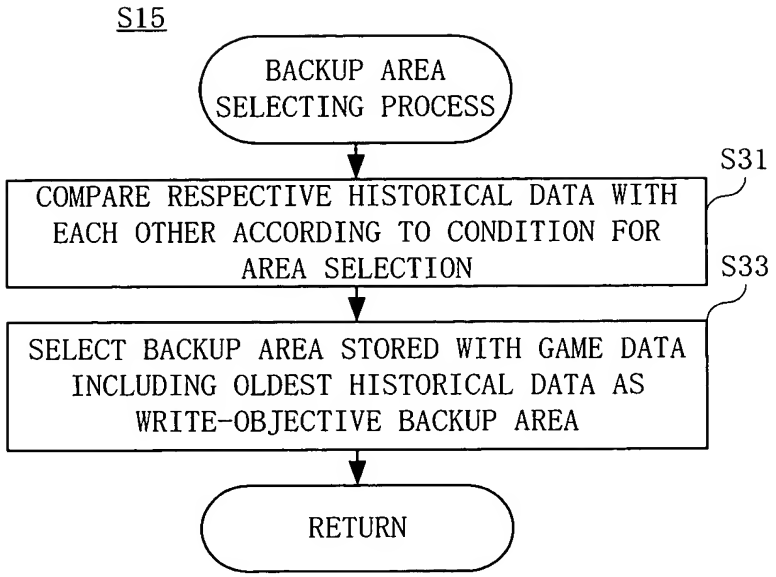

S15
BACKUP AREA SELECTING PROCESS
S31
COMPARE RESPECTIVE HISTORICAL DATA WITH EACH OTHER ACCORDING TO CONDITION FOR AREA SELECTION
S33
SELECT BACKUP AREA STORED WITH GAME DATA INCLUDING OLDEST HISTORICAL DATA AS WRITE-OBJECTIVE BACKUP AREA
RETURN

FIG. 12

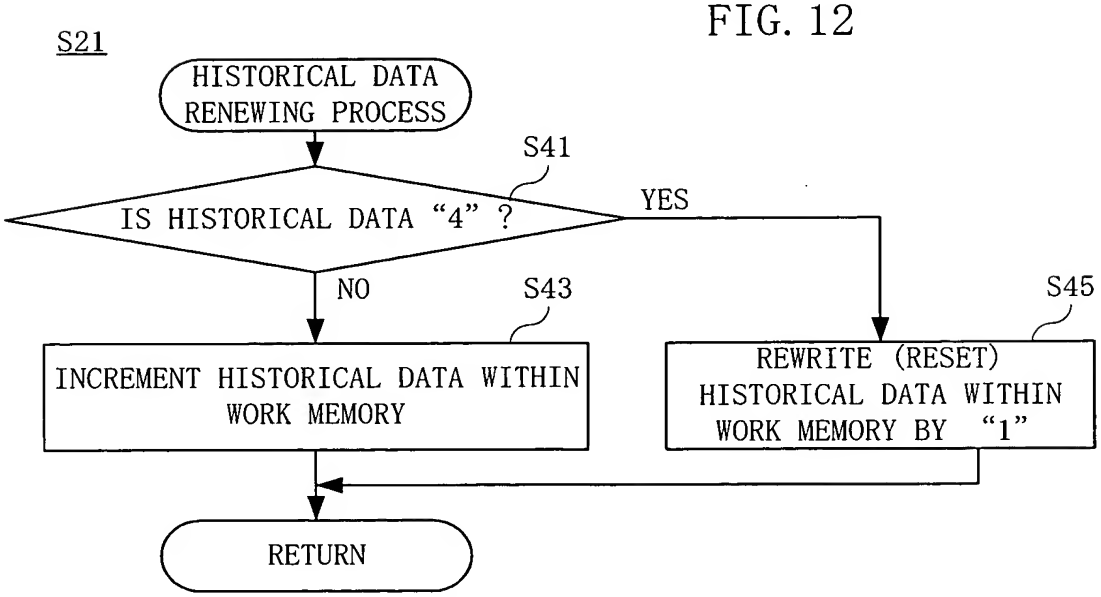

S21
HISTORICAL DATA RENEWING PROCESS
S41
IS HISTORICAL DATA "4" ?
YES
NO
S43
INCREMENT HISTORICAL DATA WITHIN WORK MEMORY
S45
REWRITE (RESET) HISTORICAL DATA WITHIN WORK MEMORY BY "1"
RETURN

FIG. 13

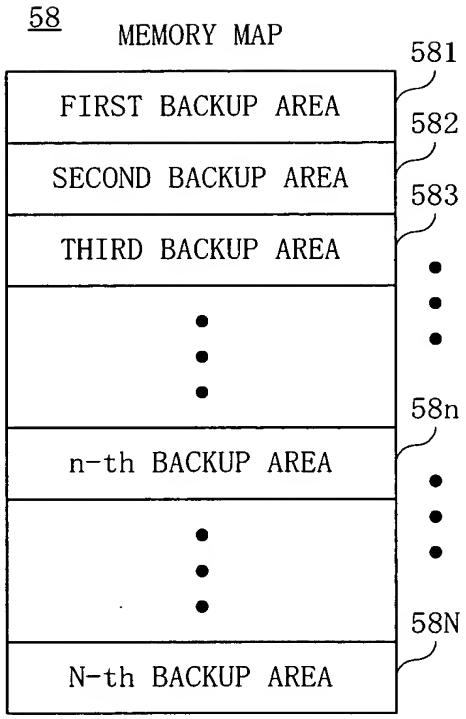

58
MEMORY MAP
581
FIRST BACKUP AREA
582
SECOND BACKUP AREA
583
THIRD BACKUP AREA
58n
n-th BACKUP AREA
58N
N-th BACKUP AREA

FIG. 14

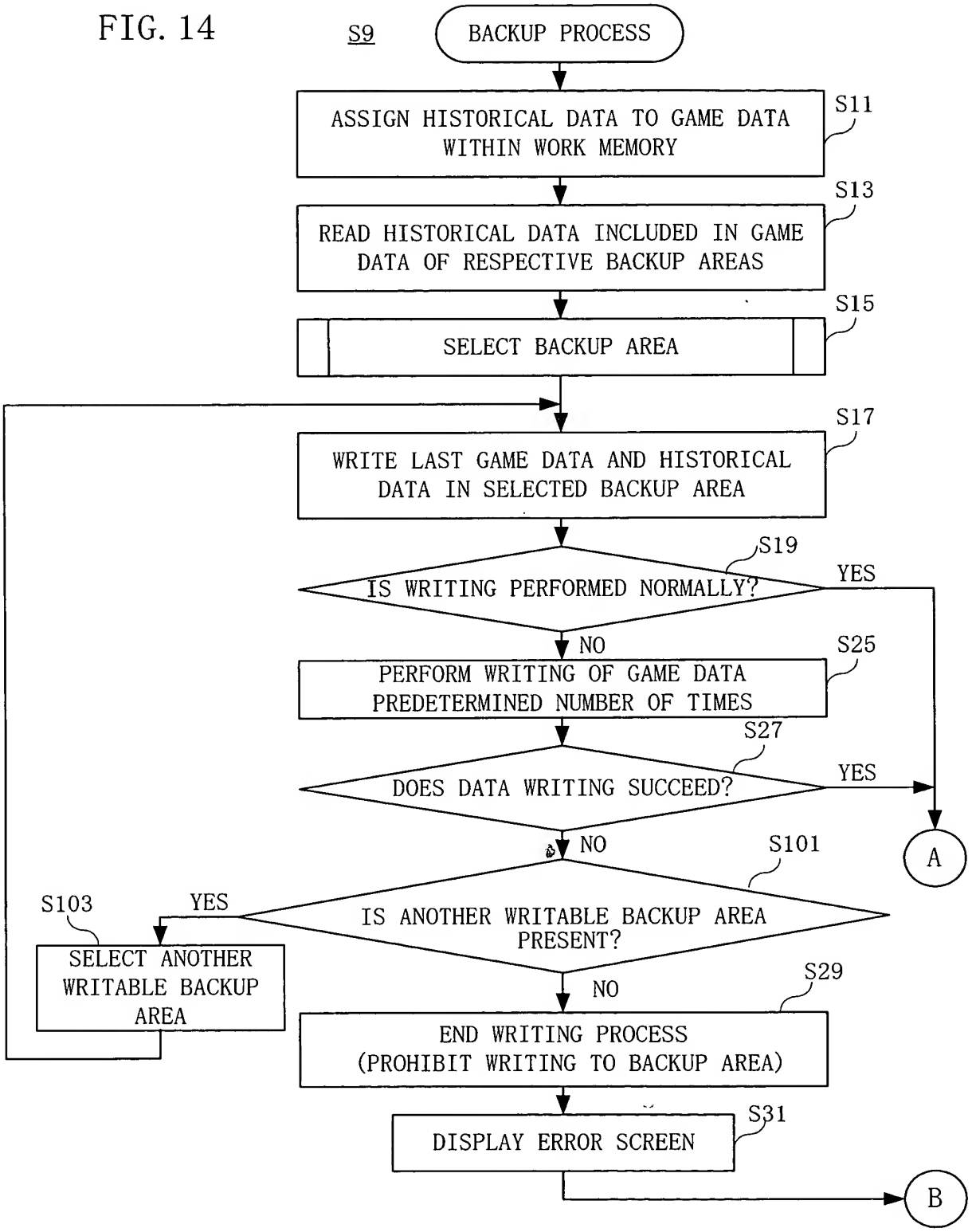

S9
BACKUP PROCESS
ASSIGN HISTORICAL DATA TO GAME DATA WITHIN WORK MEMORY
S11
READ HISTORICAL DATA INCLUDED IN GAME DATA OF RESPECTIVE BACKUP AREAS
S13
SELECT BACKUP AREA
S15
WRITE LAST GAME DATA AND HISTORICAL DATA IN SELECTED BACKUP AREA
S17
IS WRITING PERFORMED NORMALLY?
S19
YES
NO
PERFORM WRITING OF GAME DATA PREDETERMINED NUMBER OF TIMES
S25
DOES DATA WRITING SUCCEED?
S27
YES
NO
A
IS ANOTHER WRITABLE BACKUP AREA PRESENT?
S101
YES
S103
SELECT ANOTHER WRITABLE BACKUP AREA
NO
END WRITING PROCESS (PROHIBIT WRITING TO BACKUP AREA)
S29
DISPLAY ERROR SCREEN
S31
B

FIG. 15

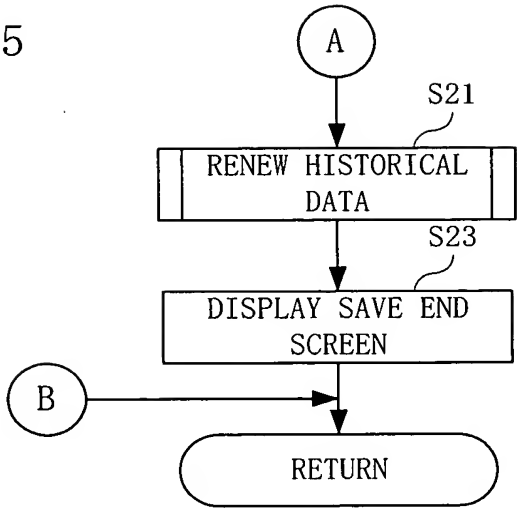
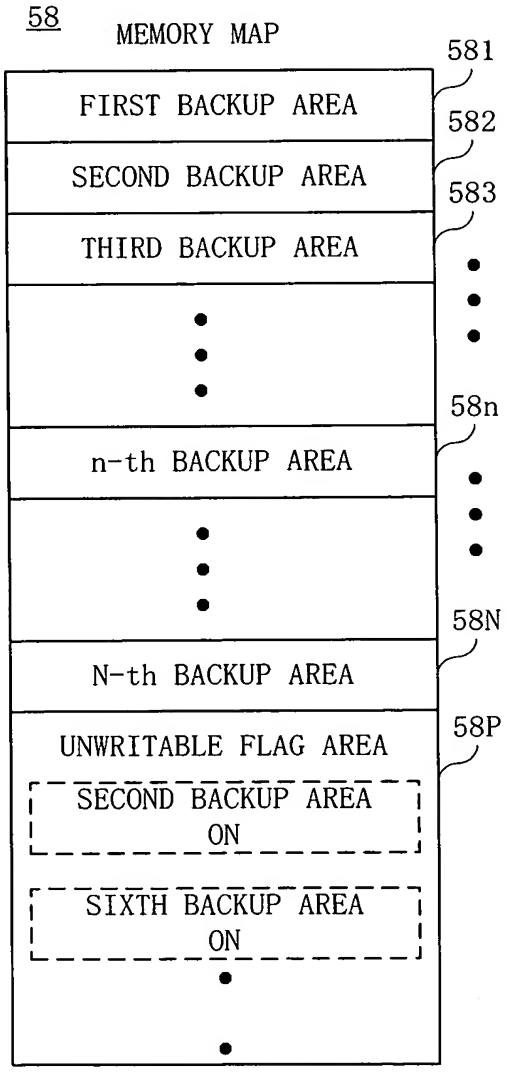

A
S21
RENEW HISTORICAL DATA
S23
DISPLAY SAVE END SCREEN
B
RETURN

FIG. 16


58
MEMORY MAP
581
FIRST BACKUP AREA
582
SECOND BACKUP AREA
583
THIRD BACKUP AREA
58n
n-th BACKUP AREA
58N
N-th BACKUP AREA
58P
UNWRITABLE FLAG AREA
SECOND BACKUP AREA ON
SIXTH BACKUP AREA ON